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Do Canadians Save Too Little?

Reports of undersaving by Canadians for retirement are exaggerated. They rely on faulty assumptions, questionable numbers and ignore the diversity of individual retirement goals.

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The Study In Brief

The common notion that Canadians save too little for retirement, which often underpins discussions of pension reform, requires closer examination. The author brings fresh thinking to the issue and comes to a very different conclusion.

First, he assesses the assumptions underlying the assertion that few middle-income workers have sufficient retirement savings. They are:

1. the household saving rate, which is calculated by Statistics Canada as a by-product of Canada's National Accounts, is a reliable estimate of the amount that Canadian workers set aside for retirement; and

2. to maintain their pre-retirement lifestyle after they retire, Canadians need to replace 70 percent of their gross employment income.

Neither assumption is correct, says the author. To demonstrate why, he examines the failings of the household saving rate as a measure of retirement savings; takes a closer look at the factors that have contributed to the decline in household saving and to explain how this decline has been misinterpreted; discusses the limitations of the 70 percent replacement target and asks how much Canadians really need to save for retirement. Finally, he questions the reliability of the studies on which the Province of Ontario has relied in making the case for the Ontario Retirement Pension Plan and discusses the policy implications.

Canadians are reasonably well prepared for retirement, he concludes. Most save more than the 5 percent household saving rate. Most can retire comfortably on less than the traditional 70 percent replacement target. The greatest challenges come early in their adult lives when the burdens of acquiring a home and supporting young children strain the family budget. After that, things get easier.

As studies of our retirement system become more sophisticated, we focus more on the distribution of outcomes and less on the averages. We inevitably discover that while many appear to be saving too much relative to the arbitrary thresholds chosen for these studies, others appear to be saving too little. The size of the group that appears to be "at risk" cannot be accurately determined nor can the attributes of its members be usefully described.

When studies conclude that gross replacement targets are unreliable measures of retirement income adequacy due to the diversity of our population, they are also concluding that programs like the Canada and Quebec Pension Plans can go only so far in addressing our retirement needs. They can establish a lowest common denominator – a replacement target that all Canadians should strive to equal or exceed. Beyond that, we need better-targeted programs – programs that are better able to recognize and address our individual needs.

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"Canada's retirement income system is working reasonably well for today's retirees. However, a number of studies from pension experts, academics and public policy institutes show that future retirees may not be saving enough for retirement and this gap will likely worsen over time."

– Ontario Retirement Pension Plan: Key Design Questions, Government of Ontario.

Canadians frequently read that they borrow too much, spend too much, save too little, retire too early and live too long. The drumbeat intensifies during RRSP season but it is always there in the background, and has been for decades. I cannot remember a time when Canadians were thought to be saving enough.

Our undersaving problem is attributed to many things: financial illiteracy, personal irresponsibility, a lack of foresight and insufficient self-control, to name just a few. The young are accused of being less frugal than their parents, just as their parents were accused of being less frugal than their parents. And so it goes.

The province of Ontario recently cited undersaving as the prime motivation for the Ontario Retirement Pension Plan (ORPP):

> Retirement experts recommend that workers aim to replace 50 to 70 per cent of their income in retirement to maintain a similar living standard. However, for a variety of reasons, many workers are not meeting that savings goal. As a result, a significant portion of Ontario workers may face a decline in their standard of living after retirement. (Ontario 2014b.)

In support of its decision to act unilaterally on pensions the province made the following points.

- The household saving rate has declined from 20 percent in 1980 to 5 percent today.
- Fewer than 35 percent of Ontario workers participate in a workplace pension plan.
- Canadians have over $730 billion of unused RRSP room.
- Canadians are living longer.
- The Canada Pension Plan is inadequate, replacing only 25 percent of employment income up to $52,500.[1]

Several studies were cited; each based on Statistics Canada's LifePaths model; each predicting a grim future for retired Canadians (Moore et al. 2010; Wolfson 2011; Tal and Shenfeld 2013).

I thank members of the C.D. Howe Institute's Pension Policy Council, in particular Jeff Aarssen, Keith Ambachtsheer, Bob Baldwin, Stephen Bonnar, David Dodge, Kim Duxbury, Barry Gros, Claude Lamoureux, Henri-Paul Rousseau, and Tammy Schirle, as well as Philip Cross, Alex Laurin, and Kevin Milligan, for their comments and views on previous drafts. I am solely responsible for any remaining errors and for the conclusions.

1 The amount is now $53,600.

None of the problems mentioned by the province are new. Firstly, the household saving rate plummeted in the 1980s. It has averaged 4 percent for the last 20 years. Secondly, while only 35 percent of Canadian workers currently participate in a workplace pension plan there was never a time when participation rates were high. They peaked at 43 percent in 1982 – more than 30 years ago.[2] Thirdly, RRSP contributions were about 50 percent of the new room granted to taxpayers in the 1990s. More recently, this has fallen to about 40 percent. The unused room, which is carried forward indefinitely, increases by about $50 billion per annum and will do so indefinitely. Fourthly, human longevity has been increasing for decades, if not centuries. And lastly, the Canada Pension Plan has paid full pensions to those who turned 65 since 1975. It is no more or less adequate today than it was 40 years ago.

The one thing for which the province has no obvious explanation is the present. If low saving rates, low pension plan participation rates, increasing longevity, mountains of unused RRSP room and an inadequate Canada Pension Plan are serious problems, the consequences should already be evident, but they are not.

Comfortable seniors? The incidence of low income among seniors, after tax, is about half the incidence among working age Canadians and compares favorably to the incidence in other developed countries. Also, according to a 2008 OECD study (Whitehouse 2009), the average income of Canadian seniors, adjusted for tax and family size, is about 91 percent of the average income of working age Canadians, similarly adjusted. Since working age Canadians devote more than 10 percent of their adjusted incomes to retirement savings and mortgage payments, seniors appear to be better off, financially, than younger Canadians.[3]

Rising net worth: On the wealth and savings side, according to Statistics Canada's Survey of Financial Security, between 1999 and 2012 Canadians doubled their aggregate net worth from $4 trillion to $8 trillion after inflation. On a per household basis, net worth increased by 76 percent, from $368,000 to $646,000. The Pension Satellite Account,[4] maintained by Statistics Canada, shows that pension assets[5] increased from $0.5 trillion (1.5 times employment earnings) at the end of 1990 to $2.6 trillion (3.2 times employment earnings) at the end of 2012. Contributions increased from 11 percent of employment earnings in 1990 to 21 percent in 2012.

Behaviour in retirement: The behavior of today's seniors is equally difficult to reconcile with the province's dire assessment. Most retire voluntarily before the age of 65. In retirement they spend less than they could – choosing not to access their largest asset, the equity in their homes. They do not annuitize their savings even though this would allow them to spend more with confidence. They do not maximize their RRSP/RRIF withdrawals. They do not like to encroach on capital. They continue to save, to donate to charity and to financially support children who need help.

2 Many of the pension plans that disappeared along the way were small defined-benefit plans with poor economies of scale, weak vesting and little or no inflation protection.

3 Of course, this does not mean that all seniors live well compared to younger Canadians or compared to the standard of living they enjoyed before they retired. But many, perhaps most, do.

4 http://www.statcan.gc.ca/pub/13-599-x/13-599-x2010002-eng.pdf

5 Including C/QPP, RRSPs, RRIFs and Registered Pension Plans.

Other studies: Recent studies[6] of Canada's retirement system, with the exception of the aforementioned LifePaths studies, have been reasonably positive about our financial preparedness for retirement.

When theories predicting a dire future cannot explain a comfortable present perhaps it is time to ask the obvious questions. If Canadians save 5 percent of income, as the province suggests, where does all the money flowing into retirement savings plans come from? How did Canadians manage to double their aggregate real net worth between 1999 and 2012 while allegedly doing everything wrong?

In *The Third Rail*, their award winning book on the challenges facing public sector pension plans, Jim Leech and Jacquie McNish succinctly express widely held concerns about the amounts Canadians save for retirement:

> If there was a triage ward for workers facing acute retirement income failure, it would be filled with middle income employees without workplace pensions. More than 5 million Canadian workers with incomes ranging from $30,000 to $100,000 have no workplace pension. Most lack the resources, expertise and discipline to save enough or invest effectively to maintain their lifestyle in retirement. A recent study estimates workers must save between 10 per cent and 21 percent for 35 years to replace 70 per cent of working wages. Given that Canada's savings rate has plunged to a scant 5.5 per cent from 20 per cent in the early 1980s, it's a safe bet that few of these middle income earners have sufficient retirement savings. (Leech and McNish 2013.)

The study cited in the quotation was written by David Dodge for the C.D. Howe Institute (Dodge et al. 2010).[7] The "safe bet" referenced at the end of the quotation – that few middle-income workers have sufficient retirement savings – rests on two assumptions:

1. the household saving rate, which is calculated by Statistics Canada as a by-product of Canada's National Accounts, is a reliable estimate of the amount that Canadian workers set aside for retirement; and

2. to maintain their pre-retirement lifestyle after they retire, Canadians need to replace 70 percent of their gross employment income.

Neither assumption is correct, as will be demonstrated in the following sections. The next section examines the failings of the household saving rate as a measure of retirement savings. Section 2 uses Statistics Canada's Pension Satellite Account to identify the factors that have contributed to the decline in household saving and to explain how this decline has been misinterpreted. Section 3 discusses the limitations of the 70 percent replacement target and asks how much Canadians need to save for retirement. Section 4 questions the reliability of the studies on which the Province of Ontario has relied in making the case for the ORPP.

The paper concludes with comments on the proposed design of the ORPP and broader policy implications.

6 See Horner (2009), Mintz (2009), McKinsey & Company (2012) and (2015), Liu et al. (2013), Baldwin et al. (2011), Cross (2014), Whitehouse (2009).

7 To be clear, the 10% to 21% range referenced in the study applies only to workers in the top 70% of the earnings distribution and, for these workers, only between the ages of 30 and 65. For most of the remaining 30% to 40% of the workforce the required saving rate is zero. Thus, the quoted range is not directly comparable to a household saving rate that is weighed down by groups such as seniors and low-income workers who have no need to save for retirement and who frequently, at least in the case of seniors, save negative amounts; i.e. they are drawing down their savings to support themselves in retirement, just as they are expected to do.

1. The Household Saving Rate: What does it Really Measure?

First, some definitions. The household saving rate is the ratio of aggregate household saving to aggregate disposable income. For its part, aggregate household saving is a residual – the difference between aggregate disposable income and aggregate consumption.

The consequences of these definitions are not well appreciated.

- The household saving rate is not a retirement saving measure; it is a measure of total saving, including saving for purposes other than retirement.
- The household saving rate is calculated for the population as a whole, not just for those with employment income.
- Disposable income is net of income and payroll taxes. It includes, in addition to employment earnings, earnings from investments (including investment income earned in tax sheltered retirement savings plans), rental income, EI benefits and pensions received from OAS and the C/QPP. In other words, it does not resemble the employment earnings on which one can contribute to a retirement savings plan.
- The National Accounts treat C/QPP contributions as taxes paid by households to governments. The assets held by the Canada and Quebec Pension Plans are treated as government assets, not household assets. Among other things this means that one cannot improve the household saving rate by expanding the Canada or Quebec Pension Plans.
- Retirement savings plans are treated in the National Accounts like bank accounts. Contributions are like deposits – they increase saving to the extent that they reduce consumption. Benefit payments are like withdrawals – they reduce saving to the extent that they increase consumption. Investment income, like interest on a bank account, increases saving if it is left in the account but not if it is withdrawn and spent.

The household saving rate differs significantly from a straightforward ratio of retirement contributions to employment income. The following illustration will demonstrate the extent of the difference.

First, consider a typical worker followed through time. In a world without inflation or wage growth, suppose that the worker:

- enters the workforce at age 25,
- earns $50,000 per annum,
- contributes 10 percent of this ($5,000) to a retirement savings account each year,
- spends the rest ($45,000),
- earns a 3 percent rate of return on the accumulated savings,
- leaves the investment income in the retirement account until retirement,
- retires at age 65,
- withdraws and spends $21,651 per annum during 25 years of retirement, and
- dies at the age of 90.

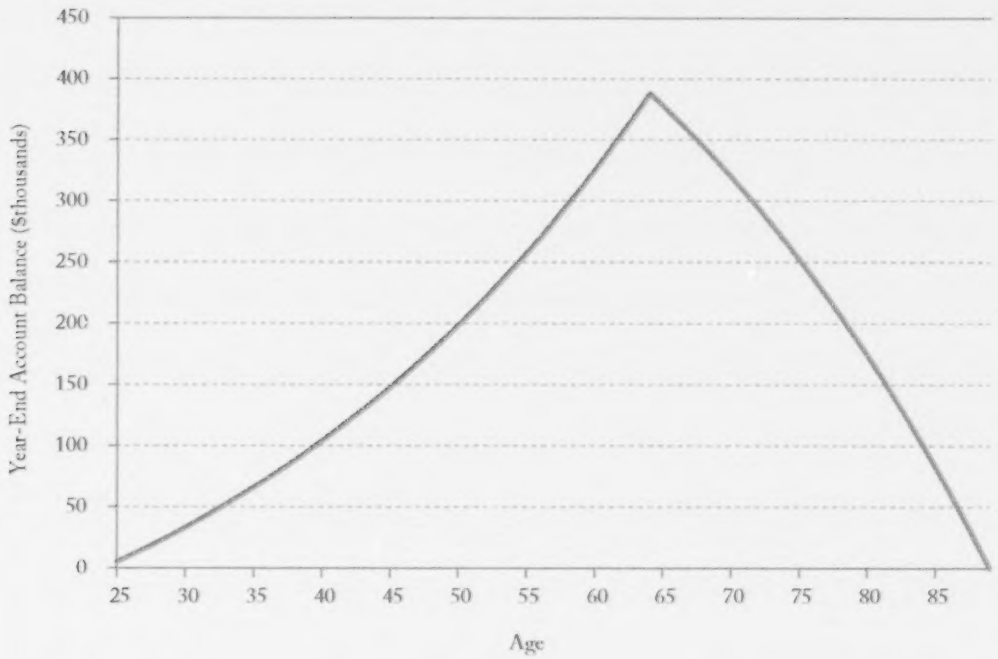
As shown in Figure 1, the retirement account balance grows and then shrinks to zero as the worker ages.

Over the worker's adult lifetime:

- employment earnings total $2,000,000 (40 x $50,000),
- contributions total $200,000 (40 x $50,000 x 10 percent),
- investment income totals $341,267, and
- withdrawals total $541,267 (25 x $21,651).

Now, instead of following a single worker through 65 years of adult life, consider a group of 65 identical workers and former workers, one at each age from 25 to 89. Each year one worker enters the workforce at age 25, one retires at age 65 and one dies at age 90. The combined totals for the 65 workers each year are, and in the absence of inflation and population growth will remain, as follows:

Figure 1: Retirement Savings Account Balance



Source: Author's calculations.

- Total employment earnings: $2,000,000
- Total contributions: $200,000
- Total Retirement Savings Account Balance: $11,716,824
- Total investment income: $341,267
- Total withdrawals: $541,267

The group's disposable income[8] is $2,341,267 ($2,000,000 + $341,267). The amount spent by active workers is $1,800,000 ($2,000,000 – $200,000). The amount spent by retired workers is $541,267. So the amount spent by active and retired workers equals the group's disposable income. Household saving, and the household saving rate, are both zero.

8 Taxes are ignored in this illustration.

This means that the household saving rate is not a measure of the amount workers collectively contribute to their retirement accounts. It is not what they set aside for retirement. It is a measure of the net amount flowing into savings; i.e. in this instance the increase in the aggregate account balance, expressed as a percent of disposable income. Absent inflation and population growth, once a savings plan matures retired workers withdraw an amount equal to the sum of:

- the amounts contributed by active workers, and
- the investment income earned in the retirement account.

Consequently, the aggregate account balance remains the same (at $11,716,824 in this instance) and the household saving rate is zero.

This leaves us with two dramatically different saving measures. First, the saving measure recognized by most Canadians, the ratio of contributions to employment income, 10 percent in this instance; and second, the household saving rate calculated using the National Accounts methodology, 0 percent in this instance.

If we change the assumed rate of return from 3 percent to something higher or lower, the account balances, investment income and withdrawals all change but the two saving measures do not. Workers continue to contribute 10 percent of earnings to their retirement accounts. The household saving rate remains zero because retired workers withdraw everything that active workers contribute as well as the investment income earned on the account, however much or little this may be.

What happens if we examine a thriftier group where everyone contributes, and has always contributed, 20 percent of earnings to the retirement savings account? Contributions double, as do account balances, investment income and withdrawals. The ratio of contributions to earnings doubles to 20 percent. The household saving rate, however, remains anchored at zero because a doubling of withdrawals counteracts a doubling of contributions and investment income. The aggregate account balance is twice as large but it does not grow. Hence the household saving rate is zero no matter how much workers contribute to their retirement accounts or how much they earn on their investments.

So far we have considered only groups in equilibrium; i.e. groups where:

- the rate at which workers enter the workforce has always been one per annum,
- the rate of return on investment has always been 3 percent, or some other number, and
- the contribution rate has always been 10 percent, or some other number.

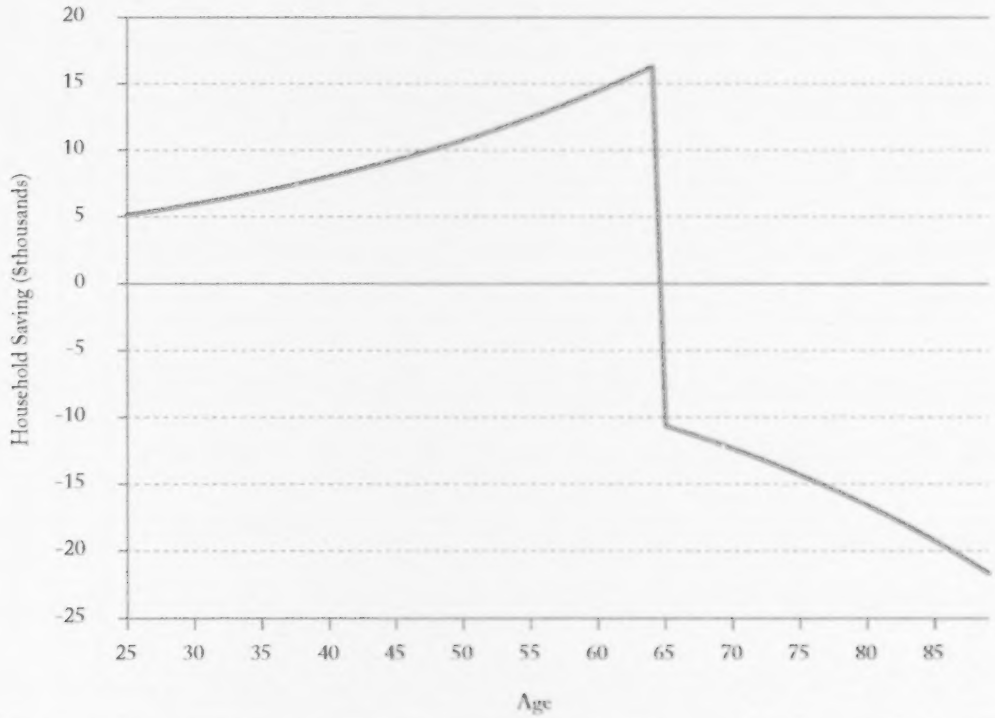
Life is more complicated if things change with the passage of time. Suppose, for example, that a group decides to double its contribution rate from 10 percent to 20 percent of earnings at a particular point in time. It will be 65 years before this abrupt change in the contribution rate is fully reflected in account balances, investment income and benefit payments. Throughout the 65-year transition period, saving – as measured by the ratio of contributions to employment earnings – will be 20 percent. The household saving rate will jump in the year of the change. Then, as higher contributions gradually work their way into account balances, investment income and, eventually, into withdrawals, the household saving rate will increase for a time before peaking and then falling back to zero after 65 years.

Population Aging and Growth

Returning to the original illustration, the saving of individual households, as measured using the National Accounts methodology, depends on a worker's age.

- Active workers save an amount equal to the sum of their contributions ($5,000 per annum) and the investment income earned on their accumulated account balances, the latter increasing as they age.

Figure 2: Household Saving by Age



Source: Author's calculations.

- Retired workers save an amount equal to the difference between the investment income earned on their decumulating account balances and the amounts they withdraw and spend ($21,651 per annum). This difference will be negative – increasingly so as they age.

Figure 2 shows the amounts saved by age. The ratio of contributions to employment earnings remains 10 percent regardless of the population's age. However on the National Accounts basis, the saving rate declines as the population ages.

If we assume that the population grows, and has always grown, by 0 percent, 1 percent or 2 percent per annum, the impact on contribution rates and household saving rates are as shown in Table 1.

These illustrations demonstrate only some of the well-known deficiencies in the calculation of the household saving rate.[9] See, for example, Horner (2009); Bérubé and Côté (2000); and TD Economics (2013).

9 Of those not mentioned, two are particularly important: the inclusion in the saving rate of inflationary increases in the stock of savings and the exclusion of capital gains (both realized and unrealized) from investment income and savings.

Table 1: Illustrative Impact of Population Growth on the Household Saving Rate

Population Growth Rate	0 percent	1 percent	2 percent
Average Age [a]	57.0	53.5	50.2
Active/Retired Ratio	1.6	2.2	3.1
Contribution Rate	10 percent	10 percent	10 percent
Household Saving Rate	0.0 percent	4.3 percent	7.3 percent

Note:
a for the adults in the group.

Interpreting Changes in the Household Saving Rate

The oft-cited reduction in Canada's household saving rate is frequently and erroneously attributed to extravagant spending and reckless borrowing. Many of the factors that have contributed to the reduction – declining inflation rates, low interest rates and population aging to name three – have nothing to do with thrift, or a lack thereof. Canada's Pension Satellite Account sheds some light on the reasons for the reduction.

2. The Pension Satellite Account

The Pension Satellite Account tracks the market value of the assets in the Canada and Quebec Pension Plans, registered pension plans, RRSPs and RRIFs.

Table 2 shows how contributions, withdrawals and investment income have changed through the years.[10]

From these numbers one can estimate the contribution that the Pension Satellite Account makes to the household saving rate[11] as well as the ratio of contributions to employment earnings. The results appear in Table 3.

Between 1990 and 2012, as the household saving rate headed sharply lower, the amounts contributed to retirement savings plans as a percentage of employment earnings headed sharply higher. Contributions are not 4 percent or 5 percent of earnings – they are 14 percent of earnings. They are not falling – they are rising.

The 6.5 percentage point reduction in the household saving rate can be attributed to a number of factors, shown in Table 4.

10 The amounts shown exclude amounts attributable to the Canada and Quebec Pension Plans as these are excluded from the calculation of the household saving rate.

11 Specifically, the household saving rate is recalculated after contributions are removed from savings and added to consumption, withdrawals are added to savings and removed from consumption and investment income is removed from disposable income and from savings. All of the adjustments are reduced by income tax at an assumed 35% rate. The reduction in the household saving rate is a measure of the impact that retirement savings had on the household saving rate.

Table 2: The Pension Satellite Account ($millions)

Year	Total Employment Earnings	Household Disposable Income	Contributions	Withdrawals	Investment Income
1990	$333,000	$426,359	$25,628	$19,940	$41,840
1991	$339,000	$441,913	$32,001	$23,178	$41,766
1992	$343,000	$454,709	$36,367	$25,049	$40,210
1993	$347,000	$470,714	$40,444	$28,236	$39,955
1994	$356,000	$477,625	$41,305	$31,485	$42,472
1995	$366,000	$490,618	$45,142	$34,280	$50,107
1996	$376,000	$499,016	$47,961	$38,060	$50,278
1997	$398,000	$517,213	$49,799	$42,603	$50,309
1998	$421,000	$539,305	$48,886	$47,673	$52,941
1999	$445,000	$567,386	$50,958	$49,214	$54,522
2000	$486,000	$604,741	$52,805	$49,561	$59,517
2001	$504,000	$631,482	$53,915	$58,176	$56,567
2002	$521,000	$659,717	$54,993	$58,156	$51,359
2003	$541,000	$686,996	$64,424	$61,474	$54,169
2004	$571,000	$722,083	$72,856	$66,820	$56,704
2005	$605,000	$755,776	$78,094	$68,474	$62,359
2006	$645,000	$813,504	$85,338	$78,291	$71,255
2007	$685,000	$856,507	$89,721	$84,206	$80,140
2008	$716,000	$904,074	$88,826	$85,153	$76,573
2009	$705,000	$921,915	$99,854	$87,633	$66,773
2010	$728,000	$956,311	$102,446	$97,163	$69,895
2011	$767,000	$999,704	$108,144	$100,753	$76,235
2012	$801,000	$1,041,318	$113,239	$107,952	$78,609

Source: Employment earnings from the Twelfth Actuarial Report on the Old Age Security Program, Office of the Chief Actuary. Household Disposable Income from CANSIM Table 384-0040.

Table 3: Retirement Savings Measures

Year	Household Saving Rate (*percent*)	Household Saving Rate Attributable to Retirement Savings (*percent*)	Contributions as a percent of Employment Earnings
1990	11.7	6.9	7.7
1991	11.8	7.2	9.4
1992	11.6	7.1	10.6
1993	11.3	7.0	11.7
1994	9.0	7.0	11.6
1995	8.2	8.1	12.3
1996	5.7	8.0	12.8
1997	3.3	7.5	12.5
1998	3.5	6.7	11.6
1999	3.3	6.7	11.5
2000	3.4	7.0	10.9
2001	3.5	5.5	10.7
2002	2.4	4.9	10.6
2003	1.8	5.6	11.9
2004	2.3	5.8	12.8
2005	1.6	6.5	12.9
2006	3.5	6.4	13.2
2007	3.0	6.7	13.1
2008	4.0	5.9	12.4
2009	5.3	5.6	14.2
2010	4.3	5.2	14.1
2011	4.4	5.5	14.1
2012	5.2	5.2	14.1
Decrease 1990-2012	**6.5**	**1.7**	**-6.4**

Source: Author's calculations.

Table 4: Factors Contributing to the Reduction in the Household Saving Rate between 1990 and 2012

Factor	*percent*
Non-Retirement Savings	4.8
Contributions to RSPs	-3.2
Withdrawals from RSPs	3.7
Investment Income in RSPs	1.2
Total	**6.5**

Source: Author's calculations.

Thus, even if one believes that the reduction in the household saving rate is important, and I do not, the reduction was not caused by a reduction in the amounts Canadians set aside for retirement or by a reduction in the accumulated retirement savings of Canadians. The reduction was caused by:

- a significant reduction in saving unrelated to retirement,[12]
- a significant increase in withdrawals from pension plans and RRSPs, and
- a significant reduction in the rate of return on retirement savings (excluding capital gains and losses), from 9.0 percent in 1990 to 3.6 percent in 2012.

If anyone is to be blamed for this it should logically be elderly Canadians for collecting their pensions and central bankers for vanquishing inflation and championing ultra-low interest rates.

The reduction in the household saving rate occurred despite: (i) a significant increase in contributions to retirement plans; and (ii) a significant increase in the stock of retirement savings (from one times aggregate disposable income at the beginning of 1990 to more than twice aggregate disposable income at the beginning of 2012).

Concerns about RRSP Contributions

RRSPs are the one area where contributions are less than robust, as can be seen from Table 5.

RRSP contribution rates have been in a slow decline since the mid-1990s. New RRSP room is about 11.6 percent of employment earnings;[13] so, as mentioned earlier, contributions are now running at about 40 percent of the newly available room.

12 This might well be a measurement error caused by the exclusion of capital gains on housing, other real estate and non-retirement financial assets from disposable income and savings.

13 Not 18%, due to the Pension Adjustment carve out (which deducts the deemed value of workplace pension plan accruals from individual RRSP contribution limits), as well as the one-year lag and the dollar limit.

Table 5: RRSP Contributions

	RRSP Contributions as a Percent of Employment Earnings
1990	3.5
1991	4.4
1992	4.8
1993	5.6
1994	6.0
1995	6.4
1996	7.1
1997	7.0
1998	6.4
1999	6.4
2000	6.0
2001	5.6
2002	5.2
2003	5.1
2004	5.0
2005	5.1
2006	5.0
2007	5.0
2008	4.7
2009	4.7
2010	4.7
2011	4.6
2012	4.6

Source: Author's calculations using employment earnings from Table 1 and RRSP contributions from CANSIM Table 378-0118.

This slowing is also apparent from the 2012 Survey of Financial Security. Between 1999 and 2012, the percentage of families between the ages of 35 and 44 who had an RRSP declined by 5 percentage points, to 60 percent. The average RRSP balance for these families increased by only 27 percent, after inflation. Meanwhile the percentage of 35 to 44 year-old families owning homes increased by 3 percentage points, to 65 percent, and the average value of the homes owned by these families increased by 101 per cent after inflation.

It appears that young Canadians are concentrating more on home ownership and less on retirement saving. This is not necessarily a bad thing. Indeed, it is almost unavoidable in a world where central banks actively supress interest rates, thereby advantaging borrowers at the expense of savers. In such an environment, young Canadians, who cannot wait indefinitely to have children and to buy a home in which to raise them, have no alternative but to borrow heavily at depressed interest rates to buy houses at record prices.

Hardly a week goes by without Canadians being reminded how heavily indebted they are. The headlines focus on the ratio of debt to disposable income rather than the ratio of debt to net worth or the ratio of interest on the debt (at record low interest rates) to income. The first ratio suggests that there is a problem. The others do not.

Consider the "debt-to-net worth" ratio of Canadian families according to the 2012 Survey of Financial Security.

- For families of all ages, the ratio was 17 percent in 2012, up from 15 percent in 1999.
- For families between the ages of 35 and 44, the ratio was 41 percent in 2012, up from 27 percent in 1999.
- For families over the age of 65, the ratio was 4 percent in 2012, up from 2 percent in 1999.

These increases are modest when compared to the additional leverage that public-sector pension plans have taken on during the last decade. The Ontario Teachers' Pension Plan, OMERS and HOOPP have pushed their combined "debt-to-equity" ratio[14] from around 10 percent to over 50 percent. I am not suggesting that Canadian families are as sophisticated or as adept at risk management as the large pension funds – nor can they borrow at the same low interest rates. But the motivations are similar. In a world where central banks encourage borrowing and discourage saving, borrowing at advantageous interest rates to buy real assets might be a good idea.

So far it has worked well for pension fund and homeowner alike.

Do TFSAs Make a Difference?

We should not lose sight of the Tax Free Savings Account. More than 10 million Canadians have accumulated more than $100 billion in TFSAs. This is a remarkable accomplishment for a savings vehicle introduced in 2009. Admittedly, many of those contributing to TFSAs are not saving for retirement. But some are and others may be, even if this is not currently their intent.

Canadians between the ages of 20 and 65 contributed $22.5 billion to TFSAs in 2012.[15] They withdrew $8.8 billion. If we assume, somewhat optimistically, that the net amount contributed ($13.7 billion) can be considered additional retirement savings, and if we gross this up to $20 billion to make it comparable to RRSP contributions,[16] then TFSAs could potentially add another 2.5 percent of earnings to the retirement savings total. This is material relative to the 4.6 percent of earnings that Canadians contributed to RRSPs in 2012. In fact, the combined rate (7.1 percent) is back to the 1996 peak.

So Are Canadians Saving Enough?

The fact that Canadians are saving 14 percent of earnings, not 5 percent, is comforting, as is the fact that the saving rate is rising, not falling. Neither proves that Canadians are saving enough. In a world with record low interest rates, aging populations and rising life expectancies, maybe 14 percent isn't enough. Maybe the rate should be increasing even more quickly than it is.

3. How Much Should Canadians Save for Retirement?

To this there is no easy answer.

The amount that we need to save depends on our circumstances and our goals. It depends on when we retire, how long we live and how many dependents we support. It depends on our jobs and our marriages, where interest and inflation rates go and how stock markets perform. It depends on future legislation. It depends on our future decisions and on the decisions of others.

Obviously then, there is no right answer for individual Canadians or for Canadians collectively. Experts make estimates based on assumptions, but assumptions are opinions, not facts, and even

14 The ratio of gross assets to net assets, minus one.

15 Canada Revenue Agency: Tax-Free Savings Account 2014 Statistics (2012 contribution year), Table 1A: TFSA holders by age group.

16 RRSP contributions are subject to income tax when they are withdrawn; TFSA contributions are not.

expert opinions are little more than informed speculation.[17]

The Problem with 70 percent

> The "one-size-fits-all" 70 percent final gross earnings replacement rate is a widespread benchmark to determine retirement income adequacy, commonly used by public policy analysts, sponsors of defined contribution and defined benefit pension plans, academics, financial advisors, and individuals making retirement financial planning decisions. Unfortunately, it does not predict living standards continuity in retirement very well at all.
>
> MacDonald et al. (2014)

To arrive at a sensible retirement saving rate one must first choose a retirement age and a retirement income target. The traditional age is 65. The traditional target is 70 percent of employment earnings during the year immediately preceding retirement. Many now argue that the former is too low[18] and that the latter is too high.[19]

The saving rates determined by Dodge et al. (2010)[20] were based on the traditional target – 70 percent replacement at age 65. Saving rates were calculated for other ages and for other targets but the 70 percent target was called the "gold standard" and the headline numbers were those associated with that target. The province of Ontario did something similar in arguing for the ORPP. The province repeatedly mentions that experts favor targets between 50 percent and 70 percent but all of the province's illustrations are based on 70 percent, the top of the range.

The problems caused by the 70 percent target are easier to illustrate than to explain.

Consider a couple with the following characteristics.

- They marry at age 25 and remain married throughout their lives.
- They live in Toronto.
- Both spouses work. Together, they earn $120,000 per annum between the ages of 25 and 44 and $140,000 per annum between the ages of 45 and 64. The earnings are evenly divided between the spouses.
- They buy a $520,000 home at age 30 with a 10 percent down payment and a 25-year mortgage.[21]
- They have twins at age 30 and support them for 20 years.
- They retire at age 65 and live to age 90.[22]

The couple's employment income is close to the average for non-elderly, two-earner Toronto couples with children. The house is below the average price for a Toronto home – which means that it is well

17 This is particularly true at the present time due to unprecedented monetary policies and the uncertain outcomes associated therewith. The estimates appearing in this section are based on an assumed 2% inflation rate, 3% rate of wage growth, 5% mortgage rate and 5% rate of return on retirement savings, net of expenses. These are the same assumptions used by Dodge et al. (2010) and they are generally consistent with the assumptions used by others for this purpose. Nonetheless, the assumed interest rates and investment returns are optimistic relative to today's unusually low interest rates and unusually high asset prices. There is no guarantee that future returns will be as good as those we now expect.

18 Due to increasing longevity.

19 See Hamilton (2001), Vettese and Morneau (2013), MacDonald et al. (2014), Mintz (2009).

20 10% to 21% of employment income.

21 I also assume that the couple accumulates other non-financial assets worth 1 times their lifetime average earnings, for a total of five times earnings or $650,000.

22 The 25-year life expectancy produces annuity factors that are close to those produced by the recently developed 2014 Canadian Pensioners Mortality Table for a joint and 60% survivor annuity.

below the average price for a single-family dwelling but above the average price for a townhouse or a condominium apartment.[23]

The illustrations are the product of a model identifying the money available to the couple for current consumption during each of three periods.

- Period 1 represents the first half of the couple's working life (ages 25 to 44).
- Period 2 represents the second half (ages 45 to 64).
- Period 3 covers the retirement years (ages 65 to 89).

I have chosen a three-period model to capture important differences between the first half of the couple's working life – when income is low (relative to the second half) and the financial burdens of home acquisition and child support weigh heavily – and the second half when, by comparison, life is easier.

The couple can live comfortably after retirement despite a reduction in income for several reasons.

- They no longer need to save for retirement.
- They no longer contribute to the CPP and EI.
- One of their large pre-retirement expenses – supporting two children – ends (by assumption) when they turn 50.
- During their working lives the couple acquires non-financial assets, the family home being the most important example, but there are many others including motor vehicles, furniture, appliances, clothing, tools, art, jewellery and kitchenware to name just a few. Some non-financial assets can be sold and turned into post-retirement income. Most cannot. Nonetheless, since all are bought and paid for before retirement and do not need to be reacquired after retirement, the pre-retirement income used to acquire these assets need not be continued into retirement.[24]
- Finally, any tolerable reduction in post-retirement income is mitigated by a disproportionate reduction in income tax due to the progressive nature of our tax system and special tax breaks reserved for seniors.

For the time being, I will assume that the couple remains in the family home until death and does not use any part of their home equity to support themselves in retirement.

The amount available for adult consumption is developed in Table 6 on the assumption that the couple saves nothing for retirement.[25]

The amounts shown for a particular period are the averages during the period. For example, mortgage payments are made between the ages of 30 and 55. Fifteen payments fall in Period 1; 10

23 If mortgage rates were currently at the 5% level assumed in the illustrations, house prices would probably be lower.

24 The cost of maintaining the assets, as distinct from the cost of acquiring them, continues into retirement and the related income must be replaced.

25 It is calculated as

- gross income from all sources (employment, government benefits, RRSP withdrawals and any drawdown of home equity),

less

- taxes (income and payroll),
- savings (RRSP contributions),
- capital acquisition costs (the 10% down payment on the house, mortgage payments and the cost of acquiring other non-financial assets), and
- child support, broadly defined.

Table 6: Adult Consumption without Retirement Savings

	Period 1 25 to 44	Period 2 45 to 64	Period 3 65 to 89
Income			
Employment Earnings	$120,000	$140,000	$0
CPP	$0	$0	$24,675
OAS/GIS	$0	$0	$13,436
Refundable Tax Credits	$0	$0	$1,971
Subtotal	$0	$0	$40,082
RRSP Withdrawals	$0	$0	$0
Home Equity Drawdown	$0	$0	$0
Subtotal	$0	$0	$0
Total Income	**$120,000**	**$140,000**	**$40,082**
Taxes, Savings And Childcare			
EI Contributions	$1,827	$1,827	$0
CPP Contributions	$4,851	$4,851	$0
Income Tax	$23,142	$29,372	$350
Subtotal	$29,821	$36,051	$350
Home and Other Capital Acquisition Costs	$25,479	$12,253	$0
RRSP Contributions	$0	$0	$0
Subtotal	$25,479	$12,253	$0
Expenditures on Children[a]	$14,213	$6,714	$0
Total Tax, Savings and Childcare	**$69,513**	**$55,018**	**$350**
Available for Adult Consumption	**$50,487**	**$84,982**	**$39,732**

Note:
a Calculated using a common adult equivalency scale: in essence, the income available to a family for consumption must increase by the square root of the number of family members to maintain a constant standard of living. This means that between the ages of 30 and 50, approximately 30% of the money available for consumption will be needed to support two children.

Source: Author's calculations.

fall in Period 2. The amount shown for each 20-year period is the average over the full 20 years, expressed in 2014 constant dollars.

If the couple does not save for retirement they will be able to consume, between them, approximately $50,000 per annum in Period 1, $85,000 in Period 2 and $40,000 in Period 3.[26]

We will now examine a succession of retirement saving strategies. The consequences of each will be summarized by six numbers.

- The amounts the couple can afford to consume in Periods 1, 2, and 3.
- The gross replacement ratio (the ratio of post-employment income, excluding any income attributable to the drawdown of home equity, to Period 2 pre-retirement employment income ($140,000)).
- The percentage of employment income contributed to RRSPs in Periods 1 and 2.

Table 7 presents the results for six different retirement savings strategies. The first strategy, saving nothing, has already been described. The others will now be described in order.

Strategy #2: 70 percent Gross Replacement

Strategy #2 is the strategy most often recommended to Canadians. Between the ages of 25 and 65 the couple saves 13.8 percent of earnings in order to replace[27] 70 percent of Period 2 employment income.

RRSP contributions reduce Period 1 consumption – from $50,500 to $41,600. While earning $120,000 per annum the couple have only $41,600 per annum to spend on themselves for two decades – even less during the 15 years after the house is acquired and the children are born. From this depressed level consumption bounds ahead by 75 percent in Period 2 and by an additional 14 percent in Period 3.

Between the ages of 25 and 44 the couple struggles to save enough to double their standard of living decades later when they retire. This is what conventional wisdom instructs young Canadians to do to maintain their standard of living. Young couples are seldom told that the standard of living they are struggling to maintain is not their current standard of living – it is the much higher standard of living they will enjoy later in their working lives.

Strategy #3: Fully Replace Final Consumption

By saving 15.1 percent of earnings for 40 years the couple can reasonably expect to consume $86,200 per annum after retiring. This is 100 percent of what they are able to consume during the last 10 years of their working lives, after the children move out and the mortgage has been discharged. It is more than double the $40,800 they consume during the first 20 years of their working lives.

The gross replacement rate required to fully replace peak pre-retirement consumption is 74 percent in this instance, slightly higher than the traditional 70 percent target but consistent with the design of most public sector pension plans.[28]

26 The amount available to the couple for consumption in a period is not uniform. The amounts shown in the table are the averages for the periods. Consumption is below average for the last 15 years of Period 1, as the mortgage payments and child rearing costs start at age 30. Consumption is above the average during the last 10 years of Period 2 because child related costs end at 50 and mortgage payments at 55.

27 In conjunction with CPP and OAS.

28 Public sector pension plans typically provide a benefit equal to 70% of final average earnings after 35 years of service, in conjunction with the CPP. If wages increase by 3% per annum, 70% of final average earnings will be about 65% of final earnings. OAS benefits will typically increase the total pension by 8% to 10% of final earnings, bringing the gross replacement rate to about 74%.

Table 7: Summary Results by Strategy

Strategy	Available for Adult Consumption			Replacement Ratio (*percent*)	RRSP Contribution Rate (*percent*)	
	Period 1	Period 2	Period 3		Period 1	Period 2
#1: No Saving	$50,487	$84,982	$39,732	28.6	0.0	0.0
#2: 70 percent Gross Replacement	$41,586	$72,649	$82,475	70.0	13.8	13.8
#3: Fully Replace Final Consumption	$40,756	$71,499	$86,151	74.0	15.1	15.1
#4: Replace Average Lifetime Consumption	$45,941	$78,683	$62,312	49.3	7.1	7.1
#5: Replace Period 2 Consumption by Saving in Period 2	$50,487	$67,445	$67,445	54.3	0.0	19.6
#6: Strategy #5 with Drawdown of Home Equity	$50,487	$75,387	$75,387	42.4	0.0	10.7

Source: Author's calculations.

The traditional 70 percent target is reasonable for young families who want to sacrifice heavily for 20 years so they can enjoy, after retirement, the high standard of living they can expect near the end of their working lives. It is also reasonable for those who never have children or buy a home. But for most Canadians the 70 percent target significantly overestimates both the income they need when they retire and the amount they must save to get there.

Strategy #4: Replace Average Lifetime Consumption

The second and third strategies materially depress the couple's already low consumption level in Period 1 in order to deliver at least twice this level of consumption after retirement. If all Canadians adopted strategies such as these, seniors and older working Canadians would enjoy a standard of living that is double the standard of living endured by young families. To a large extent this is already true; yet governments and financial institutions encourage young families to save more and to save earlier, threatening them with dire consequences if they fail to do so.

If we open our minds to the possibility that the post-retirement standard of living to which Canadians aspire need not be the peak standard of living momentarily enjoyed at the end of their working lives, the replacement and savings targets become much smaller.

Strategy #4 sets the RRSP contribution rate at the level required to maintain, after retirement, the average standard of living the couple experiences over their entire working lifetime.[29] The required contribution rate drops to 7 percent. The gross replacement rate becomes 49 percent. Consumption goes from $45,900 in Period 1 to $78,700 in Period 2 and then to $62,300 after retirement. It drops by 21 percent when the couple retires but, at $62,300, it is still 36 percent higher than it was in Period 1.

Strategy #5: Replace Period 2 Consumption by Saving in Period 2

A second alternative would be to preserve the level of consumption in Period 2 (as opposed to the higher level of consumption in the last half of period 2) while shifting the retirement saving burden from Period 1 to Period 2.

The Period 2 contribution rate then becomes 20 percent[30] with a gross replacement rate of 54 percent. Consumption in Period 1 is $50,500 – the best that can be achieved given the mortgage and child rearing burdens. Consumption in Periods 2 and 3 is $67,400, 34 percent higher than Period 1 consumption.

Strategy #6: Strategy #5 with the Drawdown of Home Equity

So far all of the strategies have ignored what, for most Canadians, is the most important asset – the family home. Since most couples continue to live in their homes after retirement and make no attempt to downsize, or to rent out rooms, or to take a reverse mortgage, this is a reasonable and a common assumption. But what happens to the house?

If the couple lives in their home until death then their children will inherit the couple's largest asset when they turn 60, as they prepare for their own retirements. To estimate the amounts that Canadians need to save for retirement assuming, first, that they derive no income from houses that they occupy until death and, second, that they inherit nothing from parents who die penniless, is oddly inconsistent. The houses should benefit someone.

29 A concept consistent with the CPP's approach to setting benefits based on indexed career average earnings.

30 Which is acceptable due to the carry forward of unused RRSP room from Period 1.

Strategy #6 is identical to Strategy #5 but the couple sells the family home upon retirement and turns it into an additional lifetime income.[31] This allows the couple to reduce their RRSP contribution rate from 20 percent to 11 percent in Period 2. The target gross replacement rate (which excludes income derived from home equity) drops from 54 percent to 42 percent. Consumption remains $50,500 in Period 1, then increases to $75,400 in Periods 2 and 3.

Implications:

Setting aside the first strategy as too extreme to represent the couple's wishes, we are left with a wide range of sensible strategies and sensible outcomes. The gross replacement rates for these strategies fall between 42 percent and 74 percent. The required contribution rates, averaged over a 40-year working life, fall between 5 percent and 15 percent. These ranges do not arise from differences in income, marital status, family size, retirement age or actuarial assumptions. They arise from the different goals that couples might reasonably choose for themselves.

Suppose we take a single strategy, say Strategy #4 (level contributions preserving average lifetime consumption), and change four things – the number of children, the distribution of income between the spouses, home ownership and whether the couple is prepared to sell the family home upon retirement.

- A couple with no children, no house and an equal division of income should aim for 69 percent gross replacement and save 13.5 percent of earnings.
- A couple with one earner, 3 children and a home that they occupy until death should aim for 42 percent gross replacement and save 7.5 percent of earnings.
- A couple with one earner, three children and a home that they are prepared to sell upon retirement should aim for 27 percent gross replacement and save 2 percent of earnings.

If we look at Canadians who are single, or couples with different combined incomes, or couples with different retirement age preferences, or if we start changing actuarial assumptions – the ranges just get wider.

No single gross replacement target provides a useful guideline for Canadians. The 70 percent replacement target is particularly poor unless the goal is to ensure that retired Canadians have a much higher standard of living than working Canadians.

4. The LifePaths Model

The discussion surrounding the ORPP is, to some extent, a discussion about whether to raise the bar for public pensions in Canada.

The role of public pensions has been to provide a generous (by international standards) safety net for those who cannot or will not save for retirement.[32] Those who want to maintain their pre-retirement standard of living are expected to save through workplace pension plans, RRSPs and/or TFSAs. Discussions about the adequacy of private savings have generally focused on averages and aggregates. How much are Canadians collectively saving? Is this enough?

31 The additional lifetime income is calculated assuming a 0% real rate of return, after tax. The low rate is, in part, to allow for the fact that the cost of renting will likely exceed the carrying cost of the home (property tax, insurance, maintenance, etc), but not by a large amount if the couple downsize, as would be sensible now that the children live elsewhere.

32 While Canada's public pensions do a good job raising seniors above the poverty line they are less effective helping those with above average incomes maintain their pre-retirement standard of living when they retire.

Ontario breaks new ground by asking new questions. Are some Canadians not saving enough? If so, should we do something about it? If Canadians need to save 10 percent to 21 percent of earnings and they are actually saving 5 percent, then many are saving too little. This is the "safe bet" referenced in *The Third Rail* (Leech and McNish 2013). But if Canadians only need to save 5 percent to 10 percent of earnings and they are actually saving 14 percent as the foregoing analysis suggests, it is not obvious that there is a problem, although there may be.

The large gap between saving rates in the public and private sectors complicates the interpretation of the averages. Using the Pension Satellite Account and an assumption that 10 percent of RRSP contributions are attributable to public-sector workers,[33] I estimate that the public-sector saving rate is around 24 percent of earnings while the private sector rate is closer to 11 percent. If one could isolate the saving rate for private-sector workers without workplace pensions – close to 75 percent of the private-sector workforce – it would not be surprising to find a saving rate between 5 percent and 8 percent.[34] If this is inappropriately distributed among workers, with some saving too much and others saving too little, many workers may be undersaving.

How many are saving too little and by how much? LifePaths is a microsimulation model developed by Statistics Canada to answer questions such as these. LifePaths attempts to statistically capture the composition, diversity and behavior of the Canadian population so that studies can look beyond the averages to the individual outcomes. Lifepaths can, at least in theory, tell us how many are seriously undersaving and, to a lesser extent, who they are. As such it is a potentially useful tool for the formulation of public policy.

Sophisticated models are not without their problems, one of which is complexity. The LifePaths model has a 33-page overview (Statistics Canada 2013). Only a handful of people can answer questions about it. Very few decision-makers have any idea how it works or what it can and cannot do. It is currently a work in progress, not something that has been perfected...a valiant effort by a resource-deprived group to improve our understanding of a complex retirement system.[35]

I will set out the shortcomings of the LifePaths model as I see them. It may be the best model that we have but, in my view, it is not good enough to answer the questions that have been put to it. Vettese (2014) has already made some of these points.

The Adequacy Threshold

The LifePaths model allows users to specify the threshold below which an individual's retirement income will be considered inadequate. Each of the three studies cited by the province in its consultation paper used a different adequacy threshold. One used 80 percent of the average potential consumption during the best 10 years between the ages of 40 and 60. One used 75 percent of the average potential consumption during the best 15 years between the ages of 35 and 65. One used 75 percent of the average

33 Public sector workers earn about 25% of aggregate employment income but their RRSP room is diminished by the large PAs associated with their DB pension plans.

34 Restricting the analysis to workers with the greatest apparent need to save for their retirement in a RRSP, Laurin (2014) estimates that among Canadians without workplace pension coverage earning more than $50,000 in 2014, about half contributed to an RRSP for an average contribution rate of 10.5%.

35 The LifePaths Program was terminated in 2014.

potential consumption between the ages of 40 and retirement.

There is an obvious "blind spot" here. None of the studies compared post-retirement consumption to consumption in the first half an individual's adult lifetime. How does 75 percent to 80 percent of consumption in the 10, 15 or 25 peak years compare to consumption as a young adult? As demonstrated by the illustrations in Section 3, consumption between the ages of 25 and 44 can easily be 30 percent to 40 percent less than consumption between the ages of 45 and 64. Those identified as having an inadequate post-retirement standard of living might be living comfortably compared to their experience as young adults.

The LifePaths model is quite capable of comparing post-retirement consumption to consumption before the age of 40 but no one has asked it to do so. Instead, the studies focus exclusively on the years leading up to, and following, retirement. It is as if Canadians had decided, without acknowledgement, that it is unacceptable for retired Canadians to have a noticeably lower standard of living than the one they momentarily enjoyed at the end of their working lives but it is fine for young families to have a dismal standard of living compared to older Canadians.

Questionable Assumptions

Actuarial and other assumptions are critically important to the LifePaths model. A model concluding that young Canadians are not saving enough is doing so entirely on the basis of assumptions. Young Canadians have not yet started to save. No one knows how much they will save or how much they need to save. LifePaths' conclusions are not based on what young Canadians have already done; it is based on what they are assumed to do in the future. The conclusion – that they will not save enough – is not really a conclusion. It is the unavoidable consequence of a series of assumptions.

How realistic are these assumptions?

The C. D. Howe LifePaths study (Moore et al. 2010) assumed that future rates of return on investment would be:

	Assumption
Real Rate of Return on DB Pension Funds	4.0 percent
Real Rate of Return on DC Pension Funds	2.5 percent
Real Rate of Return on Individual RRSPs	1.0 percent

The rate of return on DB pension funds was assumed to be riskless; i.e., DB pension funds were assumed to always earn the expected 4 percent return over and above inflation, however implausible this may be. By contrast, the returns on RRSPs and DC pension funds were treated as uncertain and, in at least one study, the benefits paid from these plans were randomly adjusted up or down to capture the extent of this uncertainty.

RRSP contribution rates were not based on these forward-looking assumptions; they were based on a backward-looking analysis of past contributions. Between 1980 and 2010 the median real rate of return on Canadian pension funds was 6.25 percent, not 4%. I suspect that the median real rate of return on RRSPs was close to 4 percent if only because real interest rates were so high before 2000. To assume that future contribution rates are the same as past contribution rates while simultaneously assuming that future returns are materially lower than past returns is to assume that outcomes will deteriorate with the passage of time.

In this sense LifePaths, as run for the studies in question, assumes that retirement outcomes deteriorate going forward. It also assumes that DB pension plans deliver high, riskless returns while RRSPs deliver low, risky returns. Not surprisingly,

the studies conclude that we will have a growing problem and that DB pension plans with magical properties are the solution.

The Absence of a Behavioral Response

LifePaths does not incorporate the kind of behavioral response that one would expect to find in the real world. The simulated individuals enter the workforce later than their parents. They marry and have children later. They live longer and earn lower rates of return on their investments.

The problem comes when Lifepaths simulates behavior 10, 20 or 30 years into the future. At some point, one would expect the simulated individuals to realize that their retirement savings are not on track and to do something about it. But they don't. They soldier on, emulating the behavior of people who went through the system 10, 20 or 30 years earlier … people whose investments had performed better. When they get to the age when their parents could afford to retire and did, the simulated children cannot afford to retire but they do anyway … because these are the ages at which people used to retire.

How then should we interpret the findings? A sensible interpretation would be that the next generation will need to do things differently. If they enter the workforce later, marry later and have children later, maybe they should retire later. If they live longer and earn less on their investments maybe they should save more, or retire later, or work part time after retirement. Maybe they can figure some of this out for themselves.

Instead we conclude that young Canadians cannot manage their finances properly, offering as proof a model that assumes that young Canadians cannot manage their finances properly.

Housing and Inheritance

As mentioned earlier, the family home is the largest asset of most families – accounting for almost one third of the net worth of families between the ages of 55 and 64. Of the three studies referenced by Ontario, two assumed that retired individuals would access only 50 percent of their home equity and one assumed that they would access none of it.

LifePaths does not yet have the ability to simulate inheritance. This means that 50 percent of home equity simply disappears in two of the studies and 100 percent of home equity disappears in the third. The rationalization, when one is offered, is not terribly convincing.

> "While the model does not allow for inheritances (mostly of benefit to those in upper income socio-economic groups anyway), it also assumes a move back to historical average rates of return from recently depressed levels." CIBC (2013)

According to the Survey of Financial Security, 86 percent of couples between the ages of 55 and 64 own their own homes. In the CIBC study cited above, the principal residence is assumed to be held until death. These facts are not easily reconciled with an assumption that inheritances will be enjoyed only by the rich, or even by a minority.

Here the studies may be guilty of looking to the past for insights into a future that will be very different. In the past it was not unusual to find one-earner couples raising three or four children. Today, it is more common to see two-earner couples raising one or two children. Why would one assume that inheritance will be as unimportant in the future as it has been in the past?

Ex Post versus Ex Ante

Canadians usually think of retirement savings adequacy ex ante. An expert determines how much Canadians should be saving for retirement. Those who save less are thought not to be saving enough.

Lifepaths does not do this. Lifepaths determines the adequacy of an individual's retirement savings ex post – by following the individual until age 70 (typically) and seeing whether the individual's potential consumption exceeds the adequacy threshold.

Both are valid measures. Both are useful – but only if properly interpreted.

Ex ante measures do a better job of ascertaining whether savers behave responsibly. The adequacy of the saver's contribution is judged relative to what is known or believed at the time the contribution is made. If the future is worse than expected the saver may find that, with the benefit of hindsight, he or she saved too little. Saving an adequate amount ex ante does not guarantee an adequate retirement income ex post.

Ex post measures do not attempt to determine whether individuals behave responsibly. They look at whether individuals succeed. An individual who saves little but ends up with an adequate income due to extraordinary stock market performance is viewed as having saved enough. An otherwise identical individual who saves more only to lose it in a bear market is viewed as not having saved enough.

Suppose a couple spend their working lives in a DB pension plan that gives them exactly what they need to maintain their standard of living when they retire. Suppose that their marriage breaks down shortly before or after retirement forcing each spouse to live alone on half the family income, foregoing the economies of scale they expected to have. LifePaths will knock 30 percent off their standard of living and they will join the ranks of those who did not save enough for retirement.

A worker who unexpectedly loses his job at 55 and cannot find suitable employment thereafter may join the list of inadequate savers, as may someone who has the misfortune of being promoted 5 or 10 years before retirement only to find that this drags up his post retirement consumption threshold by more than it increases his accumulated retirement savings.

It is useful to distinguish those who save too little from those who are sideswiped by unforeseeable future events. It is useful because no amount of saving and no known pension plan design can fully insulate people from future adversity. Not the ORPP. Not the CPP. Not workplace DB plans, DC plans or RRSPs.

We set the bar too high if we expect every Canadian to maintain their pre-retirement standard of living in every circumstance.

5. Implications in the Case of the ORPP

The ORPP is a cautionary example of what happens when we use blunt tools to address poorly defined problems. If the ORPP had been incorporated in the Canada and Quebec Pension Plans 50 years ago, the problems cited by the province of Ontario would still be with us today. The household saving rate would be low – probably lower than it is now. Public pensions would be inadequate for many. Most Canadians would not be saving enough to replace 70 percent of their employment income. There would be large and growing amounts of unused RRSP room. Large numbers of Canadians would be without workplace pensions. And yes, Canadians would be living longer with each passing year. Which of the many problems cited by the province is the ORPP supposed to solve?

Even if one believes that Canadians are saving too little for retirement, the ORPP is an ineffective remedy. The cost is too low to make a meaningful difference and the benefits are badly targeted.

For example, with respect to costs, the Ontario Teachers' Pension Plan (OTPP) currently collects $3.1 billion per annum to provide pensions to 180,000 Ontario teachers – $17,000 per member. The ORPP will collect about $3.5 billion per annum to support 3 million private sector workers – $1,200 per member. The disparity is smaller expressed as a percent of pay – 24 percent for the OTPP versus 3.5 percent for the ORPP – but it is still hard to see how 3.5 percent is going to make a meaningful difference for private sector workers when it takes seven times as much to do the job in the public sector.

Regarding the targeting of benefits, none of the studies mentioned by the province concluded that low-income Canadians are saving too little for

retirement. The undersaving problem, to the extent that there is one, is supposed to be for middle-to-high-income workers in the private sector. Yet according to the province's estimates, one-third of ORPP participants will make less than $15,000 per annum and almost one-half of these will be under the age of 25. The province points out that most of these workers will earn better incomes in the future, but why should workers save for retirement when they are young and poor? Wouldn't it make more sense for them to save when they are older and better able to afford it?[36]

In making the case for the ORPP the province exaggerates the gap between what Canadians save and what they need to save almost beyond recognition. By now this is a well-trod path. Financial institutions have long frightened Canadians by telling them essentially the same story. Presumably this is effective marketing. Perhaps it is smart politics. But as a balanced presentation of a serious issue, it comes up well short of the mark.

CONCLUSIONS

Canadians are reasonably well prepared for retirement. Most save more than the 5 percent household saving rate. Most can retire comfortably on less than the traditional 70 percent replacement target. The greatest challenges come early in their adult lives when the burdens of acquiring a home and supporting young children strain the family budget. After that, things get easier.

As studies of our retirement system become more sophisticated, we focus more on the distribution of outcomes and less on the averages. We inevitably discover that while many appear to be saving too much relative to the arbitrary thresholds chosen for these studies,[37] others appear to be saving too little. The size of the group that appears to be "at risk" cannot be accurately determined nor can the attributes of its members be usefully described.[38]

How should we fill the "gaps" identified by these studies? The Canada and Quebec Pension Plans are effective ways to increase the post-retirement incomes, and to reduce the pre-retirement incomes,[39] of all working Canadians. They are ineffective ways to increase the post-retirement incomes of hard-to-identify minorities who are thought to be saving too little. Their strength is their reach – they can efficiently move everyone to a common goal. But what if there is no common goal? What if there are only individual goals dictated by personal circumstances and priorities? When studies conclude that gross replacement targets are unreliable measures of retirement income adequacy due to the diversity of our population, they are also concluding that programs like the Canada and Quebec Pension Plans can go only so far in addressing our retirement needs. They can establish a lowest common denominator – a replacement target that all Canadians should strive to equal or exceed. Beyond that, we need better-targeted programs – programs that are better able to recognize and address our individual needs.

36 If the CPP is expanded, as the province prefers, young people who contribute on low earnings will probably receive nothing in return, as up to eight years of low earnings are excluded from the CPP pension calculation under the general drop-out provision.

37 This is not a criticism – just a reminder that there are many reasonable objectives for Canadians to pursue and many reasonable adequacy thresholds for these studies to adopt.

38 Although it is widely believed that private-sector workers with moderate-to-high earnings are disproportionately represented in the "at risk" category.

39 After deducting employee contributions and foregone salaries arising from employer contributions.

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